

Materials and Manufacturing Directorate

The Materials and Manufacturing Directorate, located at Wright-Patterson AFB, OH, and Tyndall AFB, FL, performs comprehensive research and development activities to provide new or improved materials, processes and manufacturing technologies for the U. S. Air Force. Additionally, the directorate integrates industry requirements with an execution program providing advanced manufacturing processes, techniques and systems for timely, reliable, high-quality, economical production and sustainment of Air Force weapon systems.

With a host of modern materials analysis laboratories, the directorate provides support to Air Force weapon system acquisition offices and maintenance depots to solve materials-related concerns and problems. Through highly selective in-house and contracted research efforts, the Materials and Manufacturing Directorate maintains a vigorous program to reduce costs, improve reliability and enhance the performance of Air Force aircraft, missile systems, spacecraft and related support equipment. The directorate also provides technical assistance to the Air Force, other Department of Defense agencies and the aerospace community in system studies, tests, evaluation, acquisition, modification and operation of both current and future defense systems.



Airbase Technologies Division

- Deployed Base Systems
- Force Protection
- Weapons Systems Logistics
- Operations Support
- Robotics and Fire Fighting

Integration and Operations Division

- Facilities Support
- Business Operations
- Information Support
- Technology Transfer Support
- Plans and Programs

Manufacturing Technology Division

- Processing and Fabrication
- Electronics
- Materials Process Design
- Advanced Manufacturing Enterprise

Metals, Ceramics, and Nondestructive Evaluation Division

- Metals Development and Materials Processing
- Ceramics Development and Materials Behavior
- Nondestructive Evaluation

Nonmetallic Materials Division

- Structural Materials
- Nonstructural Materials
- Polymers

Survivability and Sensor Materials Division

- Hardened Materials
- Sensor Materials

Systems Support Division

- Materials Integrity
- Acquisition Systems Support
- Logistics Systems Support

Research Areas

- Accelerated Insertion Materials
- Advanced Composite Processing and Behavior
- Advanced Industrial Practices
- Advanced Inspection Technologies
- Advanced Metallics
- Air Mobile Systems Research
- Airbase Infrastructure Technologies
- Aircraft and Spacecraft Coatings
- Amorphous Metals
- Analytical Chemistry Research
- Atmospheric Threat Protection
- Biotechnology
- Ceramics and Ceramic Matrix Composites
- Composites Supportability
- Computational Chemistry
- Corrosion Control
- Electronics
- Electrostatic Discharge Research
- Engine Rotor Life Extension
- Environmental Technologies
- Firefighting Technology
- Fluids, Lubricants and Tribological Research
- Force Protection Research
- Hardened Materials Technology
- High cycle Fatigue
- Hazardous Materials Elimination/Minimization
- High Resolution Flaw/Feature Imaging
- High-Temperature Superconductor Materials
- Infrared Sensors and Transparencies
- Laser-Hardened Materials
- Magnetic and HTS Materials Processing
- Manufacturing and Engineering Systems
- Manufacturing Processing and Fabrication Technology
- Materials Affordability Initiatives
- Materials Behavior and Evaluation
- Materials Life Prediction and Durability
- Materials Process Design
- Materials Supportability
- Metallic Composites
- Metal Matrix Composites
- Metals Processing
- Nanotechnology
- Nondestructive Evaluation
- Nonmetallic Composite Materials
- Optical Materials
- Organic Matrix Composites
- Pollution Prevention Materials
- Polymeric Materials
- Power and Chemical Processes
- Quantitative Defect Characterization
- Robotics Research
- Semiconductor Materials
- Sensor Technologies
- Solid and Liquid Lubricant Development
- Structural and Electronic Failure Analysis
- Superlattice and Quantum Well Materials
- Surface Phenomena/Interactions
- Systems Support
- Thermal Protection Materials
- Virtual Reality Training
- Wide Bandgap Materials

Materials and Manufacturing Directorate has ...

- **More than 85 years of aerospace materials and manufacturing research and development**
- **Over 500 scientists and engineers on in-house research staff**
- **More than one-half million square feet of modern research facilities**
- **Provided national leadership in aerospace materials, processes, and manufacturing research**

“Aerospace Materials and Manufacturing Leadership for the Air Force and the Nation”

For more information, contact the Materials and Manufacturing Directorate's Technical Information and Support Center at techinfo@wpafb.af.mil, call (937) 255-6469 (DSN 785-6469) or visit www.afrl.af.mil

Air Force Research Laboratory

Air Force Research Laboratory (AFRL) is a full-spectrum laboratory responsible for planning and executing the Air Force's entire science and technology program. The largest laboratory complex in the Department of Defense, AFRL has a staff of about 6000 military and civilian personnel and an annual budget of nearly \$3 billion, almost half provided by customers.

The AFRL mission is to lead the discovery, development and timely transition of affordable, integrated technologies that keep the Air Force the best in the world. AFRL is organized along technology disciplines into nine technology directorates plus the Air Force Office of Scientific Research.

Each technology directorate performs, procures and synthesizes basic research, exploratory technology development and advanced technology development within its area of responsibility. The directorates are: Space Vehicles Directorate, Air Vehicles Directorate, Information Directorate, Munitions Directorate, Directed Energy Directorate, Materials and Manufacturing Directorate, Sensors Directorate, Propulsion Directorate and the Human Effectiveness Directorate.

For more information on AFRL, visit www.afrl.af.mil, email public_affairs@afrl.af.mil or call (937) 656-9876.

